

Notice of Allowability

Application No.

10/660,038

Examiner

Ling-Siu Choi

Applicant(s)

GRUN ET AL.

Art Unit

1713

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address--

All claims being allowable, PROSECUTION ON THE MERITS IS (OR REMAINS) CLOSED in this application. If not included herewith (or previously mailed), a Notice of Allowance (PTOL-85) or other appropriate communication will be mailed in due course. **THIS NOTICE OF ALLOWABILITY IS NOT A GRANT OF PATENT RIGHTS.** This application is subject to withdrawal from issue at the initiative of the Office or upon petition by the applicant. See 37 CFR 1.313 and MPEP 1308.

1. ☒ This communication is responsive to 08/23/2005.
2. ☒ The allowed claim(s) is/are 1-4.
3. ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
 - a) ☒ All b) ☐ Some* c) ☐ None of the:
 1. ☒ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this national stage application from the International Bureau (PCT Rule 17.2(a)).

* Certified copies not received: _____.

Applicant has THREE MONTHS FROM THE "MAILING DATE" of this communication to file a reply complying with the requirements noted below. Failure to timely comply will result in ABANDONMENT of this application.

THIS THREE-MONTH PERIOD IS NOT EXTENDABLE.

4. ☐ A SUBSTITUTE OATH OR DECLARATION must be submitted. Note the attached EXAMINER'S AMENDMENT or NOTICE OF INFORMAL PATENT APPLICATION (PTO-152) which gives reason(s) why the oath or declaration is deficient.
 5. ☐ CORRECTED DRAWINGS (as "replacement sheets") must be submitted.
 - (a) ☐ including changes required by the Notice of Draftsperson's Patent Drawing Review (PTO-948) attached
 - 1) ☐ hereto or 2) ☐ to Paper No./Mail Date _____.
 - (b) ☐ including changes required by the attached Examiner's Amendment / Comment or in the Office action of Paper No./Mail Date _____.
- Identifying indicia such as the application number (see 37 CFR 1.84(c)) should be written on the drawings in the front (not the back) of each sheet. Replacement sheet(s) should be labeled as such in the header according to 37 CFR 1.121(d).
6. ☐ DEPOSIT OF and/or INFORMATION about the deposit of BIOLOGICAL MATERIAL must be submitted. Note the attached Examiner's comment regarding REQUIREMENT FOR THE DEPOSIT OF BIOLOGICAL MATERIAL.

Attachment(s)

1. ☐ Notice of References Cited (PTO-892)
2. ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3. ☐ Information Disclosure Statements (PTO-1449 or PTO/SB/08), Paper No./Mail Date _____
4. ☐ Examiner's Comment Regarding Requirement for Deposit of Biological Material
5. ☐ Notice of Informal Patent Application (PTO-152)
6. ☐ Interview Summary (PTO-413), Paper No./Mail Date _____
7. ☐ Examiner's Amendment/Comment
8. ☒ Examiner's Statement of Reasons for Allowance
9. ☐ Other _____

DETAILED ACTION

1. This Office Action is in response to the Amendment filed August 23, 2005. Claims 1-4 are now pending.

Allowable Subject Matter

2. Claims 1-4 are allowed.

3. The following is an examiner's statement of reasons for allowance:

The present claims are allowable over the closest references: Saito et al. (EP 1 153 972 A1).

Branched and Coupled Polymers	A. conjugated dienes or cojugated dienes and vinylaromatic compounds
	B. polyfunctional, organic compounds having at least 4 groups which are capable of coupling
wherein the polymers having	
a	Mw/Mn = 1.0-3.0
b	Mw = 400,000-2,000,000
c	Tg = -50°C - -10°C
d	amount of 1,2-vinyl groups + 40-80% based on the diene units in the polymer
e	degree of coupling ≥45%
f	degree of branching > 2 for at least 60% of the coupled polymers

with the proviso that	based on 100 g of polymer the amount (wt) of polymer with at least 4-fold branching > the amount(wt) of polymer with 3-fold branching
	the difference in the solution viscosity of the polymers before and after the coupling is in the range from 100 to 400

(summary of claim 1)

Saito et al. disclose a diene rubbery polymer comprising a conjugated diene rubbery polymer or a conjugated diene-styrene rubbery copolymer and a polyfunctional compound having at least two epoxy groups, which reacts (couples) with an active end of the rubbery polymer, wherein the rubbery polymer is used to produce a tire tread; the rubbery polymer has a molecular weight distribution (Mw/Mn) of 1.05-3.0; weight-average molecular weight (Mw) of 100,000-2,000,000; glass transition temperature (Tg) of -100-0°C; 1,2-bond content of the microstructure of butadiene is 10-80%; and **the rubbery polymer is modified by the polyfunctional compound in an amount exceeding 60 wt% based on the whole polymer, which results in a diene rubber polymer having a degree of branching less than two** (page 2, lines 27-29; page 5, lines 42-44; page 7, lines 14-16 and 52-54; page 8, lines 3-4; claim 1). Attention is drawn to a Referential Example 2, the difference of Mooney viscosity at 100°C between the rubbery polymer and modified rubbery polymer is 115 [165-55] (page 11, lines 22-24 and 28-29); the polyfunctional compound is tetraglycidyl-1,3-bisamino methylcyclo hexane (page 11, line 25); and the polymerization initiator is organolithium compound (page 5, lines 22-37; [0057]). Thus, Saito et al. do not teach or fairly suggest a diene rubber polymer having at least 60% of the coupled polymers having a degree of branching of greater than two.

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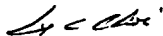
In light of the above discussion, it is evident as to why the present claims are patentable over the prior art.

Any comments considered necessary by applicant must be submitted no later than the payment of the issue fee and, to avoid processing delays, should preferably accompany the issue fee. Such submissions should be clearly labeled "Comments on Statement of Reasons for Allowance."

Conclusion

4. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Ling-Siu Choi whose telephone number is 571-272-1098.

If attempt to reach the examiner by telephone are unsuccessful, the examiner's supervisor, David Wu, can be reach on 571-272-1114.



**LING-SUI CHOI
PRIMARY EXAMINER**

October 26, 2005